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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/008,713	12/07/2001	Ryoichi Mukai	0671.66045	5134

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GREER, BURNS & CRAIN
300 S WACKER DR
25TH FLOOR
CHICAGO, IL 60606

EXAMINER

RICKMAN, HOLLY C

ART UNIT PAPER NUMBER

1773

DATE MAILED: 05/12/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

✓

Office Action Summary

Application No.

10/008,713

Applicant(s)

MUKAI, RYOICHI

Examiner

Holly Rickman

Art Unit

1773

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 February 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2, 10, 12 and 15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 12 is/are allowed.
- 6) ☒ Claim(s) 2, 10 and 15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 2, 10, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ranjan et al. (US 5840394) in view of Chuang et al. (US 6139981).

Ranjan et al. disclose a magnetic recording medium having a substrate, a sputtered NiP underlayer and a first magnetic layer formed from a Co alloy containing less than 5 at% Cr (col. 2, lines 31-34 and lines 59-60). The reference fails to disclose the use of a Cr underlayer in combination with the aforementioned layers.

Chuang et al. teaches a magnetic recording medium having a sputtered NiP layer on a substrate, a Cr underlayer thereon and a CoCr-based magnetic recording layer. The reference teaches that a Cr underlayer having a (200) structure can be used between the NiP seedlayer and the magnetic layer in order to induce [1120] orientation in the magnetic recording layer (col. 2, lines 21-50; col. 4, line 65 to col. 5, line 4). The reference teaches that the conventionally used Cr underlayer thickness is about 5.5 nm.

It would have been obvious to one of ordinary skill in the art at the time of invention to insert a Cr underlayer as taught in the prior art in between the NiP layer and the CoCr magnetic

Art Unit: 1773

layers taught by Ranjan et al. in order to produce a recording medium having a recording layer with a [1120] preferred orientation.

Allowable Subject Matter

3. Claim 12 is allowable over the closest prior art to Kubota et al. for the reasons argued by Applicant in the response filed 5/31/05.

Response to Arguments

4. Applicant's arguments filed 2/23/06 have been fully considered but they are not persuasive.

Applicant notes that “[t]he examiner incorrectly asserts that Ranjan is silent regarding a Cr-based underlayer.” Applicant correctly points out a portion of Ranjan (see col. 1, line 61 to col. 2, line 4) that discusses a Cr underlayer. The examiner notes that the reference fails to disclose an embodiment of the invention having a Cr underlayer. Applicant asserts that Ranjan et al. actually teaches away from the use of a Cr underlayer.

The examiner respectfully disagrees. The disclosure states that poor crystal lattice structure of a magnetic alloy layer may occur under certain conditions with a crystalline underlayer such as Cr and its alloys or when formed on an amorphous layer (the examiner notes that NiP is a commonly used amorphous layer which is disclosed as being suitable for use in the invention taught by Ranjan et al.). The reference then describes a method “for eliminating or minimizing the effect of a portion of a magnetic film containing a poor lattice structure” by adjusting the amount of additive materials including Cr to less than 5 at% in a first magnetic

Art Unit: 1773

layer. Thus, the reference would suggest to one of ordinary skill in the art that conventional underlayers including amorphous materials such as NiP and crystalline materials such as Cr could in fact be used in the claimed invention without exhibiting the poor crystal lattice structure characteristic of the prior art.

The reference to Chuang et al. was cited to provide a specific motivation for adding a Cr layer to the structure disclosed by Ranjan et al. In particular, Chuang et al. teaches the use of a Cr underlayer to achieve a specific crystalline preferred orientation. Applicant argues that Chuang et al. does not teach the use of a Cr underlayer in combination with the specific CoCr-based magnetic layer taught by Ranjan and instead discloses a Cr underlayer in combination with a magnetic layer containing at least 15at% Cr. The examiner takes the position that the magnetic layer compositions taught by Ranjan et al. and Chuang et al. are close enough in composition that one of ordinary skill in the art would have had a reasonable expectation of success in using the Cr underlayer taught by Chuang et al. in combination with the alloy materials Ranjan et al. Any distinction between the compositions of the two, specifically the amounts of Cr, appears to be an issue related to unexpected results. Applicant has not provided any evidence to establish that unexpected results are achieved by using Cr in combination with the claimed magnetic layer containing less than 5 at% Cr.

Applicant further argues that the present invention has a "Cr concentration in the magnetic layer as a whole" of less than 5 at% whereas Ranjan teaches upper and lower magnetic layers wherein only the lower magnetic layer has a Cr concentration of less than 5 at%. This argument is not persuasive because the claims do not exclude the presence of additional unrecited magnetic layers having Cr concentrations of 5 at% or greater.

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Holly Rickman whose telephone number is (571) 272-1514. The examiner can normally be reached on Monday-Friday 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carol Chaney can be reached on (571) 272-1284. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 1773

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read "Holly Rickman", with a stylized, flowing script.

Holly Rickman
Primary Examiner
Art Unit 1773